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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,171	10/17/2005	Munetsugu Ueyama	017700-0180	1079

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FOLEY & LARDNER
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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2835

MAIL DATE	DELIVERY MODE
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10/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,171	Applicant(s) UEYAMA ET AL.	
	Examiner Ishwarbhai B. Patel	Art Unit 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-21 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 and 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to amendment filed on September 143, 2010.

Election/Restrictions

2. Claims 16-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (specie). The limitation of claims 16-21 does not read on the elected specie. Rather, read on non elected specie. See restriction mailed on April 15, 2008.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US Patent No. 6,188,921) in view of Christopherson (US Patent No. 6,339,047), Higashiyama Kazuhisa (JP408106823), Roberts (US Patent No. 6,300,285) and Alexander Otto (US Patent Application Publication No. 2003/0,024,730), hereafter Alexander.

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Regarding claim 1, Otto discloses a superconducting wire, comprising a cladding metal tube having a hollow interior with an oxide superconductor disposed within the hollow interior of the cladding metal tube and said oxide superconductor (oxide filament in metal sheath, column 5, line 1-10), is in contact with the hollow interior of the cladding metal tube (as the superconducting material is filled in the metal tube); and the material of said cladding metal tube is silver and silver alloy (column 6, line 5-14, column 5, line).

Otto does not explicitly disclose the cladding metal tube (silver or silver alloy tube) comprising an impurity concentration of 10 ppm to 500 ppm; wherein the impurity included in said silver is at least one of Al, Fe, Cu, Ni, Si and Zn that imparts to the cladding metal tube a breaking strain of at least 30 % in a stress-strain test.

However, Otto recites controlling stress / strain in the cladding material to avoid defect in the superconductor, (column 6, line 14-30). That implies that the cladding material should be selected such that it will have desire mechanical strength to avoid the damage to the superconducting phase. Otto further recite the fracture strain greater than 1% (column 18, line 5-10) and furthermore disclose the variation of tensile strength and the fracture stain with percentage of impurity (Ga) in the cladding material (column 14, line 55-68). This further implies that the fracture strain can be controlled by varying the impurity in the silver.

Alexander discloses a superconducting wire with superconducting material (12) in a ductile metal matrix (16) and recites rolling in multiple pass to have desired size and shape with a strain in a range of 30% to 85% in reducing the cross section. This implies

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that the metal matrix to be ductile enough to withstand the strain without cracking or breaking.

Christopherson discloses an alloy matrix for superconductor and recites that high purity silver usually contains some amount of copper as an impurity, and recites even further reducing the impurity to improve quality of the matrix to avoid damage in the subsequent operations. This implies that the silver (or silver alloy) should be as pure as possible (column 4, line 12-31).

Higashiyama Kazuhisa discloses a superconductive with silver pipe having 99.99 % purity (which meets the limitation of impurity of 10 ppm to 500ppm) to have a superconducting cable with better performance.

Roberts discloses metallic tube of silver and further recites that other alloying material such as aluminum is used to increase the strength / stiffness of the structure (column 3, line 34-44).

Further, the superconductor wire of Otto, Christopherson, Higashiyama and Roberts are operational wire with the stress and strain controlled to have desired performance.

A person of ordinary skill in the art at the time of applicant's invention would have been motivated to have the silver cladding with the desired amount of impurity along with alloying material to control stress / strain of the cladding material to have better performance.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the superconducting wire of Otto with the

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cladding metal tube comprising silver having an impurity concentration of 10 ppm to 500ppm; wherein the impurity included in said silver is at least one of Al, Fe, Cu, Ni, Si and Zn that imparts to the material a breaking strain of at least 30 % in a stress-strain test, as taught by Alexander, Christopherson, Higashiyama and Roberts, in order to control stress / strain of the cladding without cracking or breaking.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involve only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding claims 2-5, adjusting the value of breaking strain (claim 2-3) or the proportion of oxide superconductor (claim 4) and maximum stress (claim 5), would have been obvious to a person of ordinary skill in the art at the time of applicant's invention, to control stress / strain of the cladding to avoid damage to the superconducting material as well as to have the desired current carrying capacity.

Regarding claim 6, the modified wire of Otto further discloses the metal tube cladding contains silver and/or silver alloy (column 6, line 5-14).

Regarding claim 7, the modified wire of Otto further discloses a material of said oxide superconductor contains a bismuth-based oxide superconductor (column 6, line 31-45).

Regarding claim 15, the modified wire of Otto further discloses the oxide superconductor fills the hollow interior of the cladding metal tube (as applied to claim 1, the metal tube is filled in the metal tube).

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Riley (US Patent No. 2002/0,142,918) in figure 1 and 2 discloses a cable with a plurality of cladding metal tubes in a sheath metal tube (16, 26).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp
October 10, 2010

/Ishwarbhai B Patel/
Primary Examiner, Art Unit 2835